UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/729,925 | 12/09/2003 | Akinobu Shimada | 500.43322X00 | 2420 |

24956 7590 08/22/2005

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

| EXAMINER | |
|---|---|
| DOAN, DUC T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2188 | |

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/729,925 | SHIMADA ET AL. | |
| | Examiner | Art Unit | |
| | Duc T. Doan | 2188 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *27 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *10-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Status of Claims*

Claims 1-9 have been canceled. Claims 10-25 are in the application.

Claims 10-25 are rejected.

### *Information Disclosure Statement*

The Information Disclosure Statements received 07/27/05, 7/01/05, 3/7/05, 2/3/05, 4/18/05, 9/22/04 and 12/9/03. See attached PTO-1449(s).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-14,17-26 is rejected under 35 U.S.C. 102 (b) as being anticipated by Hubris et al (US 6343324); (Evidentiary references: Olarig (US Pub 2004/0163028); Moayyad et al (US 6690400)).

As for claim 10, Hubris describes a disk array system comprising (Fig 1: #194): a port receiving data sent from a first information processing device (Fig 2a: #114-1); a first controller

controlling to transfer data received by said port (Fig 2a: #194-m); a memory storing data in accordance with controlling performed by said first controller (Fig 2a: #186, #181); a second controller controlling transfer of data stored in said memory (Fig 2B-3: controller k; Hubris's column 4 line 63 to column 5 line 10); a plurality of disk drive groups to which data transferred by said second controller is stored and having a plurality of storage regions in a plurality of disk drives (Hubris's Fig 2B-3 logical volumes are groups into multiple i/o groups); a plurality of logical units being an address to which data is sent from said information processing device and corresponding to said storage regions ((Hubris's Fig 2B-3 logical volumes); a plurality of resource groups each having a plurality of resources (Fig 2a: #182) among a plurality of said ports, said first controller, said memory, said second controller, said disk drive groups, or said logical units;

The claim further recites and a first resource in a first resource group of said resource groups, said first resource being changed from a first state of relating to a second resource in said first resource group into a second state of relating to a third resource in said first resource group from changing configuration in said first resource group. Hubris describes storage devices (logical volumes) can be configured and grouping based on accessibility (Hubris's column 5, lines 47-49; corresponding to the claim's resource groups). Hubris describes multiple resources such as logical volumes 2,3 (Hubris's column 5, lines 47-56; corresponding to the claim's second and third resources). Hubris describes the HVM mapping program capable of configuring logical volumes by changing configuration tables (Hubris's column 10, lines 31-42).

As for claim 11, Hubris describes a plurality of information processing device groups sending data to said ports and having said information processing device, wherein each of said

resource groups has a second plurality of resources among said ports, said information processing device groups, said first controller, said memory, said second controller, said disk drive groups, or said logical units (Hubris describes multiple tables entries are instantiate for each connecting among hosts, ports, controllers,, volumes; column 10, lines 42-50).

As for claim 12, Hubris describes a physical resource having said ports, said first controller, said memory, said second controller, or said disk drive groups; and a logical resource having said logical units; wherein said first resource is said physical resource and wherein said second resource and said third resource are said logical resource (Hubris's Fig a: #182 tables corresponding to the claim first resource; Fig 2a: #122 logical volumes 2,3 corresponding to the claim's second and third resource).

As for claim 13, a forth resource in a second resource group of said resource groups, said fourth resource being changed from a third state of relating to a fifth resource in said second resource group into a forth state of relating to a sixth resource in said second resource group for changing configuration in said second resource group. The claim rejected based on the same rationale as in the rejection of claim 10. Hubris describes logical volumes are configured and are grouped into different groups as showed in Fig 2B-3. Hubris further describes logical volumes can be grouped into shared and non-sharing groups (Hubris's column 5, lines 47-60).

As for claim 14, the claim recites a fourth resource in a second resource group of said resource groups, said fourth resource being changed from a third state of relating to a fifth resource in said second resource group into a fourth state of relating to a sixth resource in said second resource group for changing configuration in said second resource group; and

a seventh resource among said ports, said first controller, said memory, said second controller, said disk drive groups, or said logical units not belonging to said first resource group and said second resource group. The claim rejected based on the same rationale as in the rejection of claim 13. It's obvious that any number of logical volumes can be modified in share or non-sharing groups.

As for claim 17, the claim recites said first resource and said second resource are used to transfer data sent from information processing device to a first storage region of said storage regions in said first resource group; and said first resource and said third resource are used to transfer data sent from said information processing device to said first storage region or a second storage region of said storage regions in said first resource group. The claim rejected based on the same rationale as in the rejection of claims 10 and 16.

As for claim 18, a plurality of information processing devices sending data to said ports and having said information processing device; wherein one of said information processing devices is permitted to access data in a first storage region of said storage regions in said first resource group and not allowed to access data in a second storage region of said storage regions in said first group, and wherein another of said information processing devices is permitted to access data in said second storage region of said storage regions in said first resource group and not allowed to access data in said first storage region of said storage regions in said first group. The claim rejected based on the same rationale as in the rejection of claims 10 and 16.

As for claim 19, the rejection in the claim 10 is incorporated herein. Hubris describes a disk array system, comprising: a port receiving data from an information processing device (Fig 2a: #184-1); a logical unit provided for said information processing device and relating to a

storage region (Hubris's column 2, lines 38-41); a RAID (Redundant Array of Independent Disks) group relating to a plurality of disk drives, said disk drives storing a plurality of data and a parity data related to data sent from said information processing device and relating to said storage region; a plurality of logical resources having said port, said logical unit and said RAID group; Hubris describes the raid array controller with multiple logical volumes (Fig 1: #108-1) . Hubris describes logical volumes can be grouped into shared and non-sharing groups (Hubris's column 5, lines 47-60). Furthermore, it has been know in the art that a logical volume for a raid system consists of stripping data across multiple physical disks with data and parity.

As for claim 20, the claim recites a port receiving data from an information processing device; a plurality of logical units provided for said information processing device and relating to a plurality of storage regions; a plurality of disk drives having said storage regions; a plurality of ECC (Error Check and Correct) groups relating to said disk drives and each of said ECC groups storing a plurality of data and a parity data related to data sent from said information processing device; a first plurality of resources having a plurality of said ports, said logical units, said disk drives and said ECC groups; The claim rejected based on the same rationale as in the rejection of claim 19. Furthermore, it has been know in the art that a raid storage system includes ECC in order to improve the fault tolerance of the storage system. This teaching is evident in Olarig (US Pub 2004/0163028, page 1, paragraphs 9,10). The claim further recites a second plurality of resources having a plurality of types of resources in said first plurality of resource; and a plurality of resource groups each having said second plurality of resources; wherein each of said resource groups, independently of each other, can change a relationship between said second plurality of resources in each of said resource groups. Hubris describes volumes can be grouped

into share or non-shared type groups which corresponding to the claim's secondary resources (Hubris's column 5, lines 47-60). Hubris describes the relationship between tables in Fig 2A: #182 and logical volumes can be changed or reconfigured by user (Hubris's column 5 line 60 to column 6 lines 7).

As for claim 21, the claim recites a port receiving data sent from an information processing device; a logical unit provided for said first information processing device and relating to a storage region; a plurality of disk drives having said storage region; a RAID (Redundant Array of Independent Disks) group relating to said disk drives, said disk drives storing a plurality of data and a parity data related to data sent from said information processing device; and a plurality of resource groups each having a plurality of resources among said port, said logical unit said disk drives and said RAID group; The claim rejected based on the same rationale as in the rejection of claim 19. The claim further recites and each of said resource groups being logically partitioned by logical partition; wherein each of said resource groups, independently each other, can be changed a relationship between said plurality of resources in said each of said resource groups. It has been known in the art that storage in a raid array is partitioned into multiple partitions. Data in partitions are accessed in independent of each other. This teaching is evident in Moayyad et al (US 6690400, column 1, lines 54-66).

As for claim 22, the claim recites a disk array system comprising: a port receiving data sent from an information processing device; a first controller controlling to transfer data received by said port; a memory storing data in accordance with controlling by said first controller; a second controller controlling to transfer data stored in said memory; a disk drive groups storing data transferred by said second controller and having a plurality of disk drives; a logical unit

being an address sent data from said information processing device and corresponding to a storage region in said disk drive group; a plurality of resource groups each having said port, a part or all of said first controller, said disk drive group, and said logical unit; and a first resource in a first resource group of said resource groups, said first resource being changed from a first state of relating to a second resource in said first resource group into a second state of relating to a third resource in said first resource group for changing configuration in said first resource group. The claim rejected based on the same rationale as in the rejection of claim 10.

As for claim 23, the claim recites a disk array system, comprising: a port receiving data sent from an information processing device; a logical unit provided for said information processing device and relating to said port; a RAID (Redundant Array of Independent Disks) group relating to a plurality of disk drives, said disk drives storing a plurality of data and a parity data related to data sent from said information processing device to said port; a plurality of logical resources having said port, said logical unit and said RAID group; a plurality of physical resources having said disk drives; a plurality of resource groups each having one or more of said logical resources and one or more of said physical resources; a first resource group of said resource groups receiving a request of changing configuration in said first resource group so that a first resource in said first resource group can be changed from a first state of relating between said first resource and a second resource in said first resource group into a second state of relating between said first resource and a third resource in said first resource group. The claim rejected based on the same rationale as in the rejection of claim 21.

As for claim 24, the claim recites a disk array system, comprising: a port receiving data sent from an information processing device; a controller controlling to transfer data received by

said port; a memory storing information which is used to control; a plurality of disk drives storing data transferred and having a plurality of storage regions; and a plurality of resource groups each being mutually partitioned by a logical partition and each having a plurality of said ports, a part of logical parts corresponding to said controller, a part of logical parts corresponding to said memory, and said disk drives; wherein each of said resource groups can be related to said information processing device, wherein a first information processing device related to a first resource group of said resource groups cannot access resources in a second resource group of said resource groups. The claim rejected based in the same rationale as in the rejection of claim 21. Hubris further describes a memory storing data structures to control (Hubris's Fig 2A: #182).

As for claim 25, the claim recites a disk array system, comprising: a port receiving data sent from an information processing device; a controller controlling to transfer data received by said port; a memory storing data received by said port; a plurality of disk drives storing data transferred and having a plurality of storage regions; and a plurality of resource groups each being mutually partitioned by a logical partition and each having a plurality of said ports, a part of logical parts corresponding to said controller, a part of logical parts corresponding to said memory, and said disk drives; wherein each of said resource groups can be related to said information processing device, wherein a first information processing device related to a first resource group of said resource groups cannot access resources in a second resource group of said resource groups. The claim is rejected based on the same rationale as in the rejection of claim 24. Hubris further describes a memory to store data received by a port (Hubris's Fig 2A: #186).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Hubris et al (US 6343324) as applied to claim 10, and further in view of Moayyad et al (US 6690400).

As for claims 15-16, the claims recite said information processing device displays information of some resources in said first resource group and requests to change said first state into said second state (claim 15); a managing device having information relating to said resource groups; and a management client coupled to said managing device and displaying information of some resources in said first resource group and requesting to change said first state into said second state (claim 16). Hubris does not describe the claim details of management clients. However, Moayyad describes a GUI tool using remote managers to display system resources (Moayyad's Fig 13). Moayyad further describes the system virtualization wherein storage devices are partitioned into multiple partitions so that operating systems do not intermingle, exchanging data unless the user desired such exchange; column 1, lines 54-66). It would have been obvious to one of ordinary skill in the art at the time of invention to include GUI tool as

suggested by Moayyad in Hubris's system to allow user to manage system resource and restrict accessing to pre-specified resources (Moayyad's column 2, lines 1-13)

***Conclusion***

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin L. Ellis
Primary Examiner